

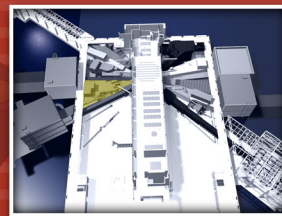
INSTRUMENT

BEAM LINE

6

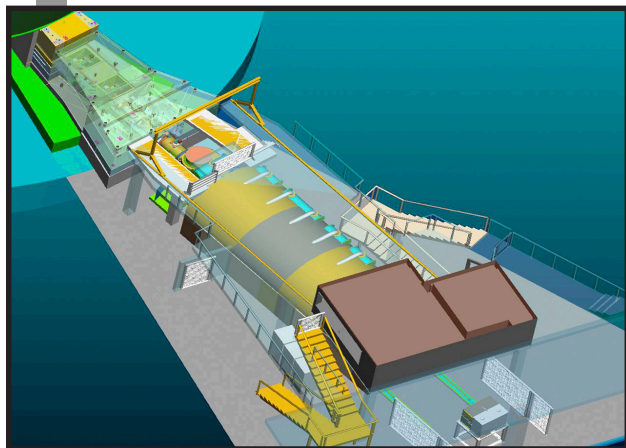
SPALLATION NEUTRON SOURCE

Fact Sheet



EQ-SANS — EXTENDED Q-RANGE SMALL-ANGLE NEUTRON SCATTERING DIFFRACTOMETER

The EQ-SANS Diffractometer is designed to study of materials across length scales ranging from 1-1000 nm. The high intensity provided by the EQ-SANS enables high-



throughput experiments, as well as time-resolved experiments facilitated by the pulsed source of SNS. EQ-SANS enables measurements over a wide Q-range at a single instrument configuration, providing improved throughput. The high maximum Q of the instrument allows both large-scale and local structure to be studied by the instrument. The versatility of SANS makes EQ-SANS broadly applicable to a wide range of materials from science and industry.

APPLICATIONS

The unique capabilities of EQ-SANS offer new opportunities for scientific studies in the following:

Life science

- Solution structures of proteins, DNA, and other biological molecules and molecular complexes
- Protein-protein and protein-ligand interactions, kinase regulation
- Protein-membrane interaction
- Materials for drug delivery

Polymer and colloidal systems

- Block copolymers and dendrimers
- Micelles, aerosols, and emulsions
- Polyelectrolytes and electric double-layer and ion distribution at solid-liquid interfaces

Materials science

- Simultaneous study of domain and crystalline structures
- Crystallization and precipitation
- Nanoparticles

Earth and environmental sciences

- Pore structure in soil
- Absorption of contaminants by soil
- Fractal structure of rocks

FOR MORE INFORMATION, CONTACT

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<http://neutrons.ornl.gov/instruments/SNS/EQ-SANS>

SPECIFICATIONS

Source-to-sample distance	14 m
Bandwidth	3–4.3 Å
Moderator	Coupled supercritical hydrogen
Integrated flux on sample	$\sim 10^7$ – 10^9 n/cm ² /s
Q range	$0.004 \text{ Å}^{-1} < Q < 1.5 \text{ Å}^{-1}$

LOW-ANGLE DETECTOR

Sample-to-detector distance	1.2–10 m
Detector size	1 x 1 m
Detector resolution	8 mm

Status: Operational



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